

WORKING DRAFT

APPENDIX D—DECONTAMINATION EQUIPMENT TRAILER

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The Boston Fire Department recently completed the construction of a new Mobile decontamination unit, shown in figure 1. This unit is a 22 ft International box truck that has been outfitted to function as a decontamination unit, responding to hazardous materials incidents. The unit provides 6 indoor showers and 4 outdoor showers using warm water and a sheltered area for changing to address modesty issues. It has been outfitted with polyethylene walls, floor and ceiling, plumbing, electrical, ventilation equipment, supplied air, and a hot water system. In preliminary testing by the Boston Fire Department it was found that it would take a civilian 6 min to 7 min to move through the decontamination sections and 5 min to 7 min for a firefighter dressed in level A. The decontamination unit also carries military field shower units and emergency decontamination shelters. The showers in the units are capable of supplying warm water for decontamination. The water heater used for the field shower is capable of delivering 33000 British thermal unit (Btu).



Figure 1. Mobile decontamination unit

The unit is divided into four sections. Smoked-out plastic curtains divide each section including the entrance and exit to provide privacy. The first section is the entrance, shown in figure 2. The entrance is utilized as a storage area for the water heater, when the unit is not in use as a clothing removal area.



Figure 2. Section 1, entrance

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Sections 2 and 3 house the showers. Section 2 houses the primary showers. Four showerheads are located in this section for decontamination purposes (fig. 3). Section 3 includes 2 showerheads, one on each wall (fig. 4).



Figure 3. Section 2, primary showers



Figure 4. Section 3, secondary showers

Finally, section 4 comprises a storage and redressing area and is used to store victim clothing, storage shelving, decontamination supplies and solutions, supplied air, and extra tentage (fig. 5). Section 4 also includes a ventilation system that draws air from all four sections through a HEPA filter and vents to the outside (fig. 6).



Figure 5. Section 4, storage area

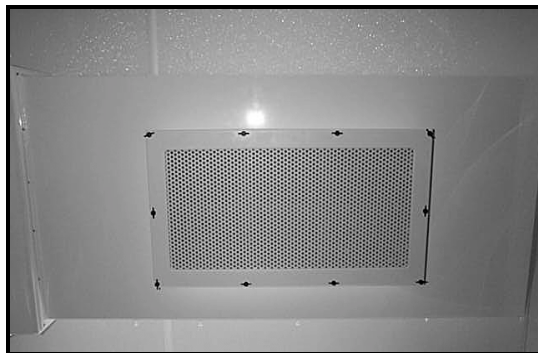


Figure 6. HEPA filter

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The hot water system employed in the decontamination unit is equipped with a military M80 diesel or JP8 fired boiler that requires 240 VAC input from the generator (fig. 7). This unit was provided by the SBCCOM under a Cooperative Research & Development Agreement with the City of Boston for evaluation. The heater itself is capable of 500000 Btu and can deliver 9 gallons per minute (gpm). The heated water is mixed in a mixing chamber with cold water to supply the entire unit. The approximate weight of the water heater is 350 lb, not including the extra hoses and mixing box used to incorporate the cold water.

The entire system must be pressurized to no more than 40 lb psi. As a result, a fire engine is utilized as a manifold to regulate the pressure from any water source (i.e., hydrant). Liquid runoff and waste runs via gravity feed through drains that are located in the floor of every section into a collapsible holding tank (fig. 8). A hazardous materials contractor then removes the contaminated water from the container.



Figure 7. Generator

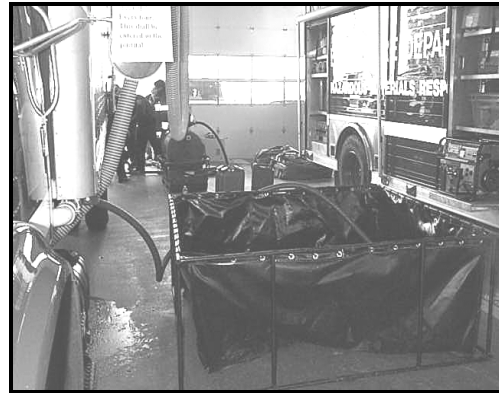


Figure 8. Holding tank

The department is currently in the process of working on revisions to their design to ensure optimal trailer levels in the future. The Boston Fire Department built the decon unit using the knowledge they have acquired during working hazardous materials incidents. However, there are many commercial decontamination trailer vendors available. Below are the names and contact information for some of them.

Advanced Containment Systems Inc. (ACSI)
8720 Lambright Road
Houston, TX 77075
800-927-2271 (Phone)

American Engineering
15886 Michigan Road
Argos, IN 46501
219-892-5151 (Phone)

Maryland Trailer Sales
410-866-4053 (Phone)

Resun Leasing, Inc.
P.O. Box 1069
Edgewood, MD 21040
800-321-7971 (Phone)

HazDecon
810 W. Alex Bell Rd
Dayton, OH 45459